

REMARKS

Applicants have amended the specification to insert the priority data already present on the Official Filing Receipt dated March 8, 2006. Written support for the claim amendments can be found throughout the specification but in particular on pages 20 and 21 for claim 1 and page 12 for claim 11.

The Objection to Claim 3

Claim 3 stands objected to because it fails to list the claim number from which it depends. Applicants have amended claim 3 to correct for the informalities. Accordingly, Applicants respectfully request that the objection to claim 3 be withdrawn.

The Rejection Under 35 U.S.C. § 112

Claims 1-10 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Without acquiescing to the merits of the rejection, Applicants have amended claims 1, 3, 7 and 8 in accordance with the comments in the Office Action. Specifically, Applicants have amended claim 1 to clarify the meaning of the term "partial salt" by further providing additional features of a claim 1 to recite "wherein the partial salt of a heteropolyacid is a partial salt with an alkali metal selected from the group consisting of sodium, potassium, and combinations thereof." This additional feature of the partial salt clarifies the term "partial salt" by providing a positive limitation thereto. Further, Applicants have amended claim 3 to further recite additional features of a partial salt of a heteropolyacid. In addition, Applicants have amended dependent claims 7 and 8 such that these claims are commensurate with the scope of the recitation "heteropolyacid catalyst" of claim 1. Applicants respectfully submit that independent claim 1 and dependent claims 3, 7, and 8, as amended, fully comply with the requirements of 35 U.S.C. § 112, second paragraph. Accordingly, Applicants respectfully request that the rejections under 35 U.S.C. § 112, second paragraph, be withdrawn.

The Rejections under 35 U.S.C. § 102(b)

Claims 1-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Otomo*. In light of the amendments to independent claim 1, Applicants respectfully traverse the rejections for at least the following reasons.

With respect to independent claim 1, as amended, Applicants respectfully submit that *Otomo* does not disclose all elements of claim 1, as amended. As pointed out in MPEP § 2131, “[t]o anticipate a claim, the reference must teach every element of the claim.” Further, “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).”

With regard to claim 1, the Office Action asserts that *Otomo* teaches a fuel cell material comprised of the following: a solid [0025] heteropolyacid catalyst [Abstract], including a noble metal [0011], a transition metal [0012], and a molecular weight between 800 and 10000 (molecular weight of working example [0045] H₃PW₁₂O₄₀-Pt-C, MW =3093). *See*, Office Action at page 3. Applicants respectfully disagree with this assertion because *Otomo* fails to teach a partial salt of a heteropolyacid “wherein the partial salt of a heteropolyacid is a partial salt with an alkali metal selected from the group consisting of sodium, potassium, and combinations thereof.” As understood by a person skill in the art, the recitation “partial salt of a heteropolyacid” means a heteropolyacid which has a defective (vacancy) of one or more transition metal ions constructing a cluster of the heteropolyacid. The structural symmetry property, catalytic activity, adsorption property, spectroscopy property and the like of the partial salt of a heteropolyacid are different from that of a normal heteropolyacid because of the defective (vacancy).

In contrast to claim 1 as amended, *Otomo* teaches a normal heteropolyacid. For example, *Otomo* teaches a heteropolyacid with the formula H₃PW₁₂O₄₀. *See*, *Otomo* paragraphs [0031], [0041]. Furthermore, *Otomo* teaches that a part of the hydrogen (H) of the H₃PW₁₂O₄₀ heteropolyacid structure can be replaced by a third element, which can be platinum, ruthenium,

nickel, copper, iron, palladium, cobalt, and cesium. *See, Otomo* paragraph [0035]. However, *Otomo* does not teach a “partial salt” of a heteropolyacid with an alkali metal selected from the group consisting of sodium, potassium, and combinations thereof. Accordingly *Otomo* fails to teach all elements of claim 1, and therefore claim 1 is allowable over the cited reference.

Applicants further submit that the present claims can be differentiated from *Otomo* because the cited reference relates to a mechanical fuel cell in which heteropolyacids having a normal structure, and platinum particles are mixed and the mixture is used as an electrode in the fuel cell. The amended claims, however, are directed to a fuel cell with a new heteropolyacid catalyst in which a noble metal ion is inserted into the defective vacancy of a partial salt having a one atom vacancy. Thus, Applicants respectfully assert that dependent claims 2-10 are allowable at least because of their dependency from independent claim 1 and for the reasons set forth above.

Claim 11 is newly added which incorporates the features of amended claim 3. Applicants respectfully submit that new claim 11 is allowable by virtue of its dependency on claim 1, which as amended is considered allowable since *Otomo* does not teach all elements of claim 1.

Conclusion

In view of the foregoing, Applicants respectfully request reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response; the Examiner is invited to contact Applicant's undersigned representative to expedite prosecution.

If there are any other fees or credits due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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